Space Weather Forecast

Issued on Wednesday 11 December 2024 at 13:09 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Low to Moderate Solar Activity

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Moderate with three Moderate class flares observed. Peak flare was from the region in the northeast. This is the most developmental region on the disc and currently shows some limited complexity due to its mixed polarity magnetic field. The next most active was the small region in the southeast that remains difficult to assess due to its location. This was the source of the other two M-class flares. The other region of note, is the moderately sized region now moving across the southwest disc, but has been relatively inactive in comparison.

No Earth directed coronal mass ejection (CME's) were observed although a number have been analysed as missing.

Solar Wind / Geomagnetic Activity: Solar wind speeds eased from slightly elevated, at just over 400km/s to be mainly background from 11/1530 UTC, at around 350-400km/s. Interplanetary Magnetic Field was weak, with the north-south component (Bz) mainly negative (southwards). Geomagnetic activity was Quiet (Kp 1-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background, with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Moderate activity is likely with occasional Moderate class flares and a slight chance of Strong class flares.

Solar Wind / Geomagnetic Activity: There are no Earth directed CMEs. Mainly background winds are expected. The next main enhancement to the solar wind is likely to be on day 4 (14 Dec) or just beyond this period on day 5 (15 Dec) from the onset of the fast winds from a coronal hole. Geomagnetic activity is forecast to be Quiet with a chance of isolated Unsettled intervals. This increasing to give Unsettled to Active, with a slight chance of G1 Minor Storm intervals on day 4 (14 Dec) if any enhancement occurs.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to persist at background, with only a very slight chance of solar radiation storms occurring.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

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Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	1	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	Yes	70	65	60	60
Very Active	R3-R5 (X Class)	No	10	10	5	5

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	10
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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